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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,558	12/29/2003	Wen-How Lan	03243-URS	9087

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EXAMINER
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VINH, LAN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/748,558	Applicant(s) LAN ET AL.	
	Examiner Lan Vinh	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6-11, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuda et al (US 2003/0136957)

Tsuda discloses a method for forming LED. The method comprises the steps of:

forming a GaN semiconductor epitaxy layer on said substrate, said GaN semiconductor epitaxy layer further comprising an n-type GaN contact layer, a light-emitting layer 106 and a p-type GaN contact layer 108, said light-emitting layer being a light-emitting source (col 2, paragraph 0031)

forming a AlInGaNP well layer/contact layer having a thickness of 5nm/50 angstroms on the GaN layer (col 4, paragraph 0055; col 5, paragraph 0058), which reads on forming a digital penetration layer on said p-type Gan contact layer, said digital penetration layer having functions of a p-type ohmic contact and high transmittancy with respect to light emitted by said light-emitting layer

using a mutli-step dry etching method to etch said digital penetration layer, said

p-type GaN contact layer, said light-emitting layer to form n-type electrode/an n-metal forming area, etching terminating at layer 110/ light-emitting layer (col 4, paragraph 0043-0044; fig. 1)

forming a first GaN/ohmic electrode 906 on the contact layer for the p-type ohmic contact layer, forming a second ohmic contact electrode 909 on said n-metal forming area for said n-type ohmic contact layer (col 8, paragraph 0098)

forming pads 908 on both first ohmic contact electrode and said second ohmic contact electrode (col 8, paragraph 0098; fig. 9(a))

forming a dielectric 910/protective layer on said p/n junction area (col 8, paragraph 0098; fig. 9 (a))

Regarding claim 2, Tsuda discloses using MOCVD apparatus to form the device (col 3, paragraph 0042)

The limitations of claims 3,11, 13 have been discussed above

Regarding claim 4, Tsuda discloses that the light-emission layer emits light having wavelength of 410 nm (col 2, paragraph 0033)

Regarding claim 6, in one embodiment, Tsuda discloses that the GaN contact layer having a thickness of 0.1 microns/1000 angstroms (col 3, paragraph 0037)

Regarding claim 7, fig. 9(a) of Tsuda shows that the distance between the first contact electrode 906 and the substrate is greater than the distance between the second contact 909 and the substrate

Regarding claim 8, Tsuda discloses that the second contact electrode is formed of Au (col 8, paragraph 0099)

Regarding claim 9, Tsuda discloses forming the pad comprises of Au (col 8, paragraph 0099)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al (US 2003/0136957) in view of Huang et al (US 6,693,352)

Tsuda method has been described above. Unlike the instant claimed invention as per claim 5, Tsuda fails to disclose forming the contact electrode comprises of Indium Tin-oxide (ITO)

Huang discloses a method for forming group III-V semiconductor structure comprises the step of forming a contact electrode comprises of Indium Tin-oxide (ITO)

Hence, one skilled in the art at the time the invention was made would have found it obvious to modify Tsuda method by forming the contact electrode comprises of Indium Tin-oxide (ITO) as per Huang because Huang discloses that the conductive layer in enhanced LED is preferably formed of at least ITO (col 2, lines 50-55)

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al (US 2003/0136957) in view of Yoshida et al (US 2003/0082860)

Tsuda method has been described above. Unlike the instant claimed invention as per claim 12, Tsuda fails to disclose forming the protective layer of polyimide

Yoshida discloses a method for forming a transistor comprise the step of forming a protective dielectric layer 36 of polyimide (col 5, paragraph 0109)

One skilled in the art at the time the invention was made would have found it obvious to modify Tsuda method by forming a protective dielectric layer of polyimide as per Yoshida because Yoshida discloses that the polyimide serves as a voltage resistant and heat-resistance resin (col 4, paragraph 0086).

#### ***Allowable Subject Matter***

6. Claims 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims

#### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LV  
September 27, 2005